

COHESIVE THRESHOLD SPACES AS COMMUNAL ANCHORING NODES IN SHAPING SUPER DIVERSE COMMUNITIES COMBATING COVID19 PANDEMIC: THE CASE OF KUMBHARWADA, DHARAVI, MUMBAI, INDIA

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Abstract

It is Important to Understand how people perceive the world in which we live and imagine. In Indian Cities, organic slum settlement of Dharavi, Mumbai is a great example of spatialities created by people's need and demand. It has coherence of low rise-high built densities, socio-economic & cultural diversities in shaping the physical setting. Successful urban patterns facilitate cohesiveness in the communities. The impact of pandemic (COVID19) has altered the cohesion at some level. Therefore, practicing social distancing has remained a notional norm. It will be very important to understand how people have adhered to social distancing norms in the organic settlements uplifting the community. The paper is divided into four stages. A theoretical premise is nurtured to understand prerequisite of space today which is the integration of threshold and cohesion. Threshold is defined as "separation" while, cohesion is defined as "Connection", resulting into the formation of Cohesive threshold spaces. Such spaces involve the interpersonal dynamics and sense of connection among people. The idea is to decode cohesive threshold spaces, their character, types and significance. It also intends to focus on types of spatial delimiters pulsating from micro, mesa to macro level. The spatial delimiter is then supported to understand the spatial context of spaces in detail. It also examines neighborhood of Dharavi as communal anchoring node. Cognitive perception is a method adopted possibly to record, map and analyze such spaces. The paper evaluates a case of Kumbharwada model in Dharavi to understand impacts of pandemic. It also highlights how community participation in Dharavi has emerged as a concrete prototype for social distancing and contact tracing to curtail the impacts at a large scale. Lastly, the magnitude of cohesive threshold spaces is understood by virtue of community participation to combat such pandemic today and in future accelerating successful model.

Keywords: Super-diverse community, cohesive spaces, threshold, cohesive thresholds, Spatial delimiters, Dharavi, Mumbai

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Introduction

A city is not just a place in space, but it is a drama in time (Geddes 1912). Slums are the places where poor can dream. The weak can hope. The helpless can strive. The powerless can rise (Dhliwayo 2019). As the quote suggests, despite being poor, weak, helpless and powerless, people of Dharavi themselves derived their own strategies to control the spread of virus during pandemic clearly depicting what communities are. Plurality is seen in its geographical, demographical, historical, political, economic and socio-cultural base. The concept of community/social stratification in slum organic settlements of Dharavi began into a larger setting due to its variety in forms and functions in the built fabric, which has always attracted various ethnic groups, social stratum and age groups. It inculcates a multi-faceted structure of social organization, involving social institutions, groups and individuals configuring intense social relations into living. Such inclusiveness promotes cultural rights celebrating diversity. Intermixing of functions has governed livability including safety, comfort and convenience. The narrative of Dharavi is all about spatialities, highlighting land values and built densities creating a clear status of stratification in its setting. Although Dharavi is incredibly poor, it's industrious and vibrancy is the beating heart of Mumbai. It's organic and incrementally developed urban form is pedestrianized and network-based, with mixed use, high density low-rise streetscapes have an ecosystem of community flourishing in the midst environmental toxicity, highlighting the plight of Dharavi. This dynamic system is ultimately about improving quality of life and allowing diversities to be united as a whole. Urban social studies therefore analyses community life in all its complexities and realities to maintain harmony even today. Perhaps, there are additional and unwanted forces, which disturbs this communal harmony, when an urban crisis resulting into worldwide pandemic brings insecurity and health threats among people. It attracts stagnation and social cohesion that entirely disturbs the order of work, eating, travel and interaction. There comes a shift from diversity to paucity. However, logic of space formation in Dharavi is based on people's needs and demands, more or less a human phenomenon that it adopts to the space and use it in certain ways. Here, the space is also so flexible, that it allows changes and patterns which deals with the environment of varied complexity. The aim of the study is to understand how Kumbharwada a neighborhood of Dharavi, which is compact settlement managed to practice social distancing.

Background

India is the second-most densely populated country in the world, with a less than adequate healthcare system aggravated by the fact that 21.9 per cent of the total population lives below the poverty line (Survey 2018). The novel corona virus disease (COVID-19) pandemic has infected over four million people in India as of September 1, 2020 and has killed over 65,000 people (COVID19india.org).

When the nation received its first cases on January 28th, it witnessed an exponential spike in late March, that led to a nationwide lockdown on March 24th in order to stem the infection. In overcrowded slums like Dharavi which is an organic slum settlement in the city of Mumbai, Maharashtra, spread over 2.1 square kilometers is considered to be the largest slum with a population of over one million (<https://en.wikipedia.org/wiki/Dharavi>). Therefore, practicing social distancing has remained a notional norm in the organic settlements of Dharavi. It will be very important to understand how people have adhered to social distancing norms in the organic slum settlements uplifting the community. Practicing Social Distancing and self-quarantine in such settlement remains far from implementation. However, the curve of COVID-19 positive cases in

Dharavi slum has shown a declining trend with 102 active cases with over 2478 recoveries out of 2480 total infected people (Brihan Mumbai municipal corporation,2020).

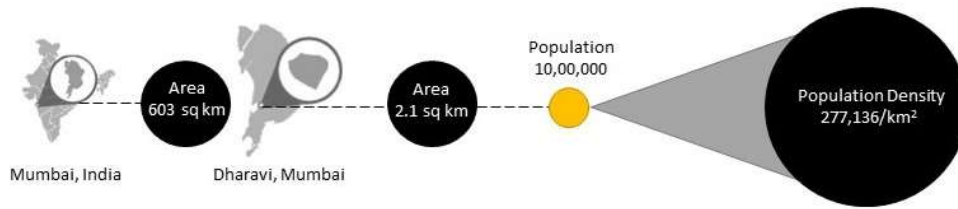


Figure 1: Location, Demography, Population
 Source: Author

Lack of space and over-crowding is a unique identity of promoting social interaction and networking because no one has real privacy. The intra and cross network of cohesion(connection) has derived the stratification which is functional, conflicting and interacting at the same time. Living in a community is all about creating a sense of cohesion by virtue of spaces inhibiting both tangibles and intangible characteristics. The current pandemic has altered the cohesion leading to transformations at some level in the new normal where fear has come to drive society. The cramped communal toilets, each shared by thousands, lie dirty, further heightening their fears among people. The symbiotic relationship has undergone a reset, driven by the imperatives of managing the crisis along with a sense of health security.

Theoretical Premise

a) Cohesive Threshold spaces

Cohesive spaces involve the interpersonal dynamics and sense of connection among people. Cohesion is defined as “connection”. Thresholds is defined as "separation" resulting into Spatial delimiting spaces.

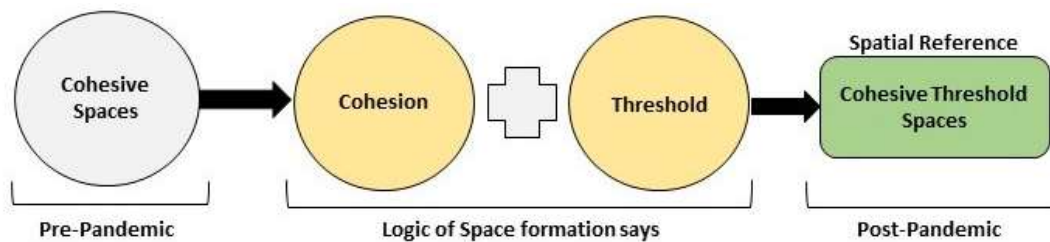


Figure 2: Concept of Cohesive Thresholds
 Source: Author

Every day we cross a number of "thresholds" which starts from coming out of our personal room and meeting other members of our family, then going out and making our self part of larger groups, urban environment and activities. Such line of action was a part of our normal life and routine. The concept of combining cohesion and threshold is an idea to study how logic of space formation has played a vital role in connecting volumes and people by separating and

differentiating them. Such an ideology will help us understand how people have maintained the social distancing in Dharavi, in such compact and tight setting. Simmel writes of the human ability to separate spaces-that is to establish a boundary between them and the need to then connect them (Boettgar 2014).

Dharavi acts as viable example where one encounters cohesive thresholds. It has places of quick transitions, a space with no fixation in its physical limits of space but coheres strong knit of connection, to enter or exit and many a times tying of interior and exterior spatiality together are the spatial delimiters. In Dharavi, there is a thin line, which exists between cohesive space and thresholds. There is a blurred boundary, which exists between cohesion and threshold. Thresholds in many cases are the primary space for people. These thresholds are at times recognizable and not-recognizable too.

b) Cohesive thresholds with Spatial Delimiters (at Macro Detail)

There is flood of policy level delimiters like guidelines, nationwide lockdown, unlock criteria's, wearing of masks in public spaces, maintaining social distance and sanitization. The dilemma has made the people strangers living and working under a single shed. Exponential spread of disease in one particular area (neighborhood) has restricted movements and sealed the borders at neighborhood level as prevention measures. Places with tangible physical boundaries like planned settlements can be easily demarcated and restricted contrary to unplanned settlements with blurred boundaries.

Although, spatial characteristics of organic settlements have varied spatial delimiters in their cohesive threshold spaces which provides a space with a clear status, which helped people to maintain human contact in present times. Spatial delimiters are present at variety of scales from smallest to largest divided into Boundary, border and limits in spaces.

- **Boundary (Enclosure)** : Creating a boundary in any space or place is drawing clear physical division which are not easily accessible is at private micro scale.
- **Border (Dividing element)** : Exponential spread of disease in one particular area (neighbourhood) has controlled movements at neighbourhood level as prevention measures is at semi-public mesa level.
- **Limit (weak points)** : People have started confining themselves within their own set limits is at public macro level.

c) Spatial Context of Delimiting Spaces (at Micro detail)

Spatial delimiters as borders, boundaries and limits is about the macro level recognition of details to understand how the spaces have responded and changed behavioural pattern with the need of time. Spatial context is the micro level integrities of these spatial delimiters. It is more inclined towards understanding the permeability and visibility. The space detail helps the user to determine spatial awareness, navigation and decision making in this case. These formal findings will combine to substantiate number of observations , about the influence of spatial characteristics at micro level . It also communicates how people have moulded spatial configuration, through visibility and permeability characteristics by means of mapping phases and recognition , sequence and spatial organization.

It has further played an important role in supporting and maintaining physical distances, thus realizing the idea that built environments still encourage social interactions and may inhibit the formation of communities.

- **Phases and recognition:**The fundamental principle in the built-environment and context of space at micro level is to ensure that the occupants along with outsiders could recognize measures to avoid contacts, keeping health security as a primary concern by virtue of approach point, entries and exits. Although due to organic arrangement of spaces, it is difficult to differentiate. It is important for the occupants to provide clear discrimination either inside or outside a building. Means of egress is defined as a location of an exit via doors or any barrier element which ensures safe and controlled flow without any obstructions. It is influenced by a number of factors related to the characteristics of both the dwelling unit and the occupants who shaped the space. However, it was more of people's behavior related to the schemata in their minds that maps, how different facilities are organized in specific situations.
- **Sequence:** By passing through a space, a path creates movement and points of rest within the space ideally. A path can also terminate in a space like a meeting point, playing, interacting, thresholds and edges. Such spaces in context of Dharavi were the places that meant not only for movement but due to space constraints they also acted as their space to work. The path determines the sequential tracking of movement of people to commute from one place to another. The significance of such path was part of their economy generation, spill over and display their occupation. It will be very important here to understand how this logic of space formation has helped them to control movements at the same time maintain physical contacts in this path.
- **Spatial organisation:** Organization of space is fundamental to the composition of a built-environment. The spatial organization in a place like Dharavi is a mix of residential and economic activity of which the resultant space outcome is derived through. It is organized into patterns so that they relate to one another in a specific way. Spatial relationships between forms has helped to define interaction between people and their activities. The idea behind understanding spatial organization in time of pandemic will help in identifying how people have adopted to changing circumstance in the same space to isolate themselves and curtail down its spread.

Super Diverse Community: Dharavi as a Communal Anchoring Node

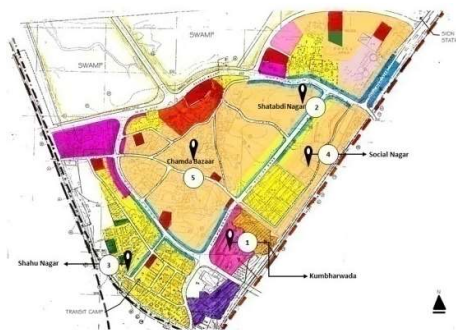


Figure 3: Layout of Dharavi

Source: Author

Dharavi is in between busy train tracks and polluted Mithi River, which separates this organic slum from modern skyscrapers of Mumbai. It is a place where the history unfolds. It is a home to well-functioning organic spaces, and heterogeneous communities. It is an informal community where residential, commercial and productive activities are closely integrated with diversity in people and place. There is a symbiotic relationship co-existing between living and working environments. Functioning of Dharavi pulsates with intense informal economic activity highlighting the reality of unprivileged facets. Despite these facts, it is a self-contained model of strong social dynamics with symbol of informal urbanism leading to a conflicting process of producing, reproducing and manifesting. It is called as industrious neighborhood with small producers and communal nodes alive with infinite number of street and *galis*.

The network of coherence starts from their own dwelling units (private-micro level). The streets as collective spaces become nerve centers of multifunctional activities for interactions, through fares, ceremonial processions and festivities (semi-public level). Due to High density of the fabric and lack of defined open spaces and amenities, the narrow streets, small squares and nodes become point of interaction and participation. These strong layer of cohesive spaces for people which often acts as open spatial bodies that are experienced in motion, walked through and traversed till sharing toilets together (public macro level). However, the pre-requisite of space experience today is based on amalgamation of both cohesion and threshold. Due to this, the intensity of interaction is derived out of both function and conflicts with the capacity to accommodate different profiles of users, which coexist due to negotiations between people, places and activities generating a pattern of living in spaces today.

Framework: Spatial Delimiters and Existing Components of Cohesive Threshold Spaces

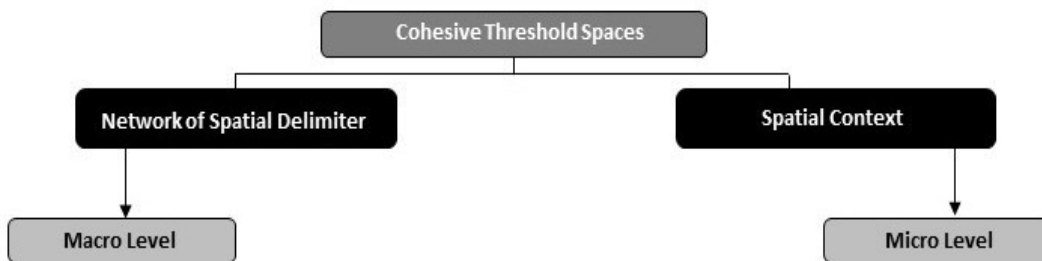


Figure4: Interpretation of Cohesive threshold spaces at different scale
 Source: Author

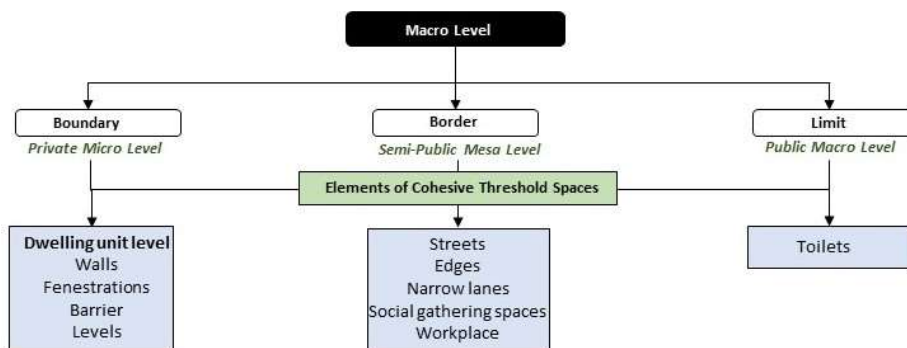


Figure 5: Framework to study cohesive threshold spaces at macro level
 Source: Author

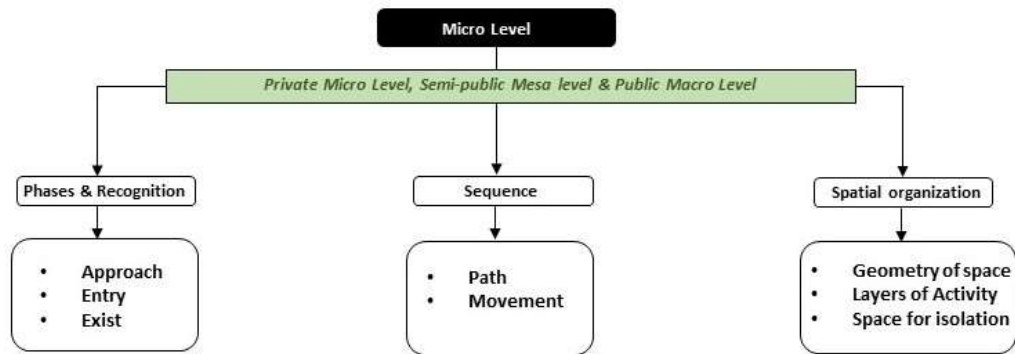


Figure 6: Framework to study cohesive threshold spaces at micro level
 Source: Author

Methodology

Given below is the research methodology (Fig:7) showcasing case study approach. The research is developed through an in-depth process which consisted stages of study area selection, investigative approach and analysis through non-physical means by method of cognitive perception, while gaining discipline and knowledge in the process of examination.

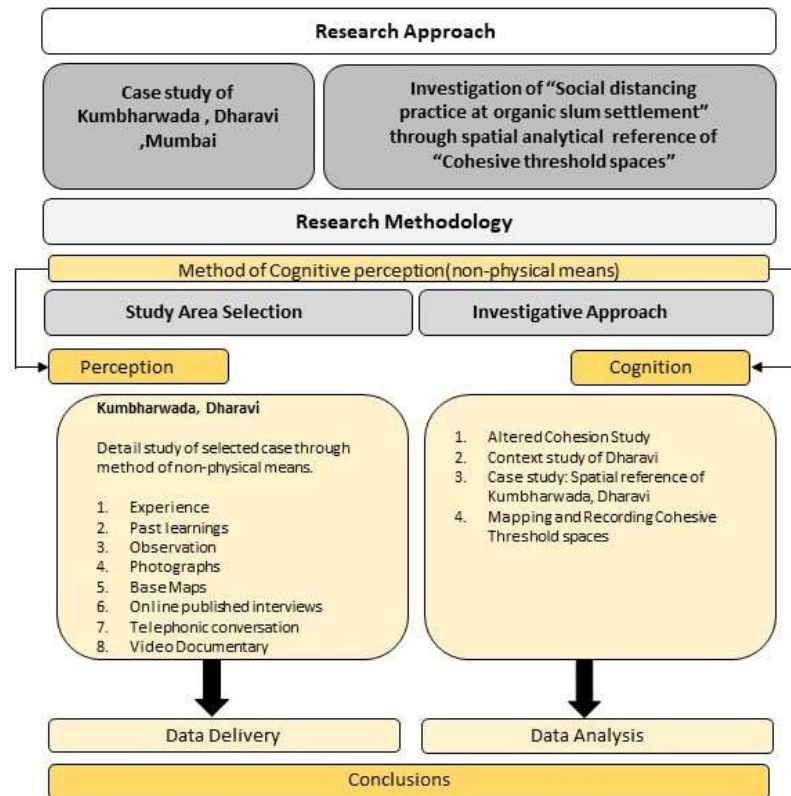


Figure 7: Research methodology
 Source: Author

Recording by means of cognitive perception here means sensory and memory approach, one of the ways in which one deals with information. Perception refers to ways of obtaining information from our environment, record and document whereas cognition describes processes such as remembering, learning, solving problems, analysis and orientation. This method is adapted in the process which has been deliberated, observed and experienced in the past by the authors and now being substantiated remotely to conduct the study.

It is very important to note here that while a lot has been already written, derived and documented in case of Dharavi and Kumbharwada, however Nothing pertaining to cohesive threshold spaces as communal anchoring nodes has been talked in the past in order to study the impact of COVID19 pandemic.

Limitations

Examining the entire neighborhood of Dharavi in one paper would have been challenging hence the study is restricted to the Kumbharwada settlement. Therefore, it is limited to mapping of various strategies adopted in Dharavi to curtail the spread through community participation and analyzing specific area on derived parameter based on theoretical orientation, which will be entirely subjective and qualitative. This qualitative research will help to lay the foundation and do further studies related to cohesive threshold spaces by applying some quantitative techniques to combat any such pandemics in the future.

Analysis and Findings

a) Altered Cohesion: Towards Practicing Social Distancing

Dharavi has witnessed numerous epidemics and other disasters in the past, including a widespread plague in 1896 which killed more than half of the population of Mumbai(<https://en.wikipedia.org/wiki/Dharavi>). However, COVID 19 is continually reinventing newer definitions of what cities, its places and people are, resulting into community transformation at some level.

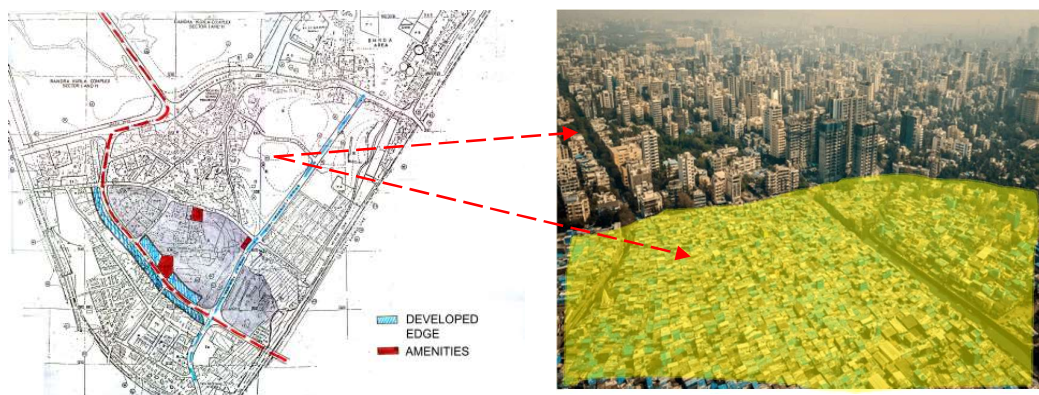


Fig:8 Image showing contrast between setting of Dharavi and Mumbai

Source: Mediapolis, Author Map

Table1: Statistical Data showing figures on overall average analysis

S.no	Description	Figures
1	Total Population of Dharavi	10,00,000 people
2	Number of Households in Dharavi	57,000 families in 280 ha
3	Number of households in Kumbharwada	2000 families in 5 ha
4	Daily Average COVID case in Dharavi	Less than 20
5	Total cases as of September 13	140 actives
6	Total Cases	2915
7	Recovered	2505
8	Average Age group impacted	21-60 years
9	Daily Average case in Kumbharwada	Less than 3-4 cases a day

Source: Author, daily Reports

There is a pool of stern instructions wherever we go, creating a new pattern of space-user and user to user engagement, a new political system, a new economic paradigm and a new social framework with new imaginations.

"Gole mein Rahiye." Stay in the circle
"Chalte Rahiye." Keep Moving
"Dur se baat kijiye." Stay away and talk
"Look up for the thermal scanner".
"Look down for the Sanitizer".

Source: Author

This appears as various verbal and visual delimiters, which we encounter now a days when we are into public places like retail shops, malls, markets, restaurants, airports and during travelling etc. It has altered the sense of cohesion amongst people. Practicing social distancing and enjoying social life in large and open parcel of land is easier.



Figure 9: Practicing Precautionary measure in public spaces



Figure 10: Practicing Social Distance of 1m
 Source: Financial Express



Figure 11: Altered cohesion due to health threats in Dharavi
 Source: Gulf news

Jan Gehl in life between buildings has talked about Social distance: Social distance (1.30 to 3.75 meters – 4½ to 12 ft.) is the distance for ordinary conversation among friends, acquaintances, neighbors, co-workers, and so. Such delimiters can never be practiced in Dharavi and maintained where their own personal space is not more than 1m x 1m (Gehl 1936).

b) Context Study: Dharavi

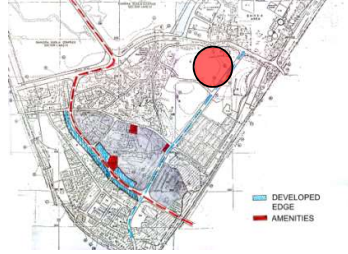
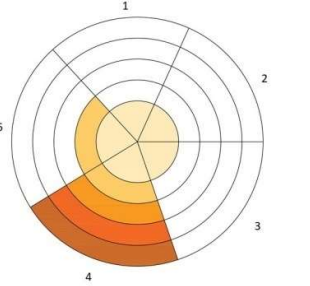
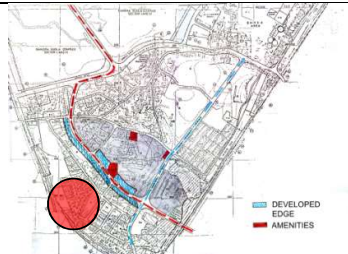
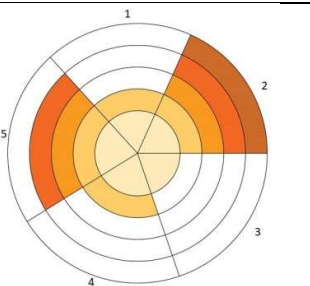
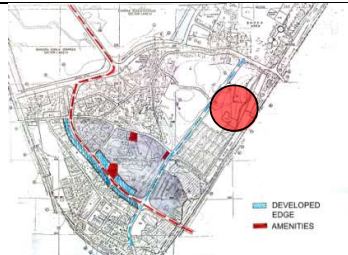
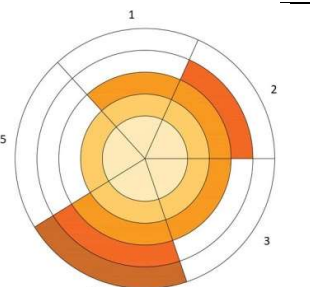
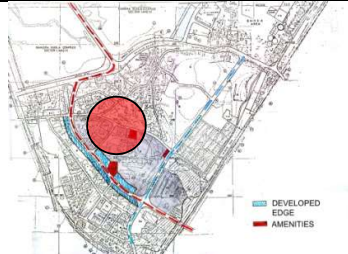
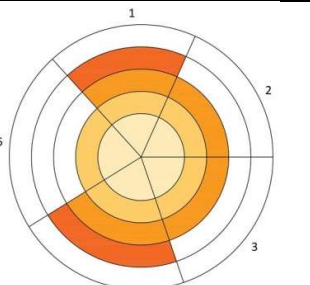
Dharavi has evolved over a period of time on needs and demands which we often quote as "an architecture without architects". These are the places in our urban built-fabric, which has benefited people by virtue of its strong social stratification and hierarchy in its composition.

There are Different Nagar’s (area/zones) in Dharavi (Fig 11) i.e., Kumbharwada, Chamda Bazaar, Social Nagar, Shahu Nagar and Shatabdi Nagar etc. The entire physical setting is multifunctional in terms of its community, functional and economic productions. Its status is a clear outcome of cohesion, connectivity, community participation, density and infrastructure & amenities. The study in the later stage will represent a link between pre and post COVID scenarios.

Analysis: This part of study is an attempt to analyze different Nagar’s in Dharavi in order to understand cohesive threshold spaces at macro, mesa and micro level. There are different parameters selected on the basis of theoretical premise. The analysis shows zone description of all the *Nagar’s*, localization and analysis of different parameter on a rating basis from lower to higher band reflected in five quadrates of the circle. This analysis was conducted based on surveys on qualitative aspects done in the past and now represented through cognitive perception method particularly cognition to prepare the chart below.

Table2: Analyzing Nagar's of Dharavi in terms of its Cohesion, connectivity, community participation, density and infrastructural & amenities

Parameters: 1. Cohesion 2. Connectivity 3. Community Participation 4. Density 5. Infrastructure & Amenities		Levels: Low to High
Zone Description	Localization	Analysis
<p>1.Kumbharwada</p> <p>Kumbharwada is the center of the pottery activity. The potters from a very compact community established in the area since 18th century and their income are relatively high. Between 1000-1500 families reside in Kumbharwada.</p>		

<p>2.Shatabdi Nagar</p> <p>Shatabdi Nagar is a newer settlement, established in the 90s on a dump ground in a peripheral area of Dharavi. Hygienic condition are extremely poor. Most of the population is Dalit and there is a large population of transient workers. Locals are marginalized within Dharavi and a sense of community is lacking.</p>		
<p>3.Shahu Nagar</p> <p>The neighborhood is peripheral to Dharavi, but close to Mahim train station and well connected to the rest of the city. There aren't strong social ties.</p>		
<p>4.Social Nagar</p> <p>Social Nagar is densely populated, which brings problem of overcrowding and infrastructure decay. Its community is cohesive and willing to engage actively in a project to change the current situation.</p>		
<p>5.Chamda Bazaar</p> <p>Chamda bazaar is located in very center and is home to biggest market place to Dharavi. Population Density is very high and visitor's flow due to business is always at peak.</p>		

Source: Author, Observation

Inference

Kumbharwada shows highest degree of Cohesion in the spaces and amongst people. It has well defined connectivity in its organic setting due to major thoroughfares and train routes, it is a site of diverse and extensive activities. People solely engaged in business of pottery popularly named as potter's community. It is a place bustling with life at all the times and tries to spatially segregate the different kinds of activities that take place in the *wada*. It has hierarchy in open spaces which

allows residents spillover around themselves resulting into uniform densification. Although, People of Kumbharwada lags in case of having a good infrastructure and amenities with them.

Case Study: Spatial Reference of Kumbharwada, Dharavi: At Small Scale level

Kumbharwada sits in the heart of Mumbai, in Dharavi. 'Kumbhar' means 'potter' and 'Wada' meaning 'colony'. It is home to a community of potters from Gujarat, India. Fig: shows map of Kumbharwada which has a total land area of 12 acres and a population of about nine and half thousand people. The buildings are limited to Ground+2 mixed use building typology, being spatially flexible. The entire setting of Kumbharwada is divided into 5 galis, with kilns dotted across. These galis function as open space, meeting points with thresholds acting as semi private spaces.



Figure 12: Kumbharwada, Dharavi Map
Source: Author

During the Pandemic, people have moulded and carved their own niches to continue social participation in smaller groups of two or three by making spatial delimiters in these thresholds and cohesive spaces to practice social distancing. There is no such place with an enclosed boundary which will help people to isolate themselves but the space logic did allow them. The network of Cohesion in Kumbharwada pulsates from micro level space (private dwelling units) to mesa level spaces (narrow lanes with kilns dotted across, workshops, shops selling pottery, social gathering area which are semi-public) swiftly moving towards macro level (community toilets sharing). The entire chain binds together stronger cohesion which has place specific and people specific associations which has helped the community to grow and evolve. It is very important to understand the network in both the scenarios of pre and post pandemic in order to pick exact impacts on the spaces.

Mapping elements of Cohesive threshold spaces: Considering Boundary

a) Network of Spatial Delimiter: macro

Elements Analysis

1. **Walls/Enclosure**-At private Micro level of dwelling unit, even though with high density. The units are designed in such a way that maximum residents have their living spaces at upper level.

2. **Barrier**-Due to work-home relationship, all the pottery activity is at the ground floor with a spillover of the same which has blocked the frontages and therefore acting as Barrier point.
3. **Fenestration**-The fenestration is placed at higher level for egress of smoke generated due to their pottery making activity.
4. **Levels**-Two floors are connected by level with an outer stair which has cut down the access from inner portion of the house, therefore splitting of occupants at different level without contact was manageable.



Figure 13: Spatial Delimiters at Dwelling unit level
 Source: Google

b) Spatial Context: micro



Figure 14: Phases & Recognition

The approach point is undefined with no separate entry & exit due to space constraints.

Source: Author

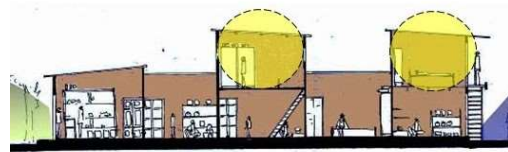


Figure 15: Spatial Organization

Occupants mainly utilized mezzanine space to isolate themselves.

Source: Author

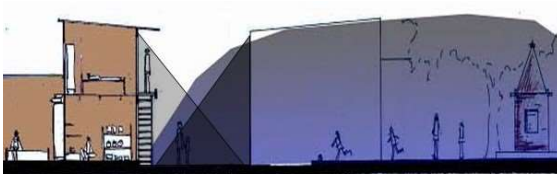


Figure 16: Sequence

Due to compact built-fabric, the resultant path for movement are highly pedestrianized, with a cohesive environment to work and interact. However, impacts of pandemic has reduced the intensity of Coherence with a controlled movement pattern.

Source: Author

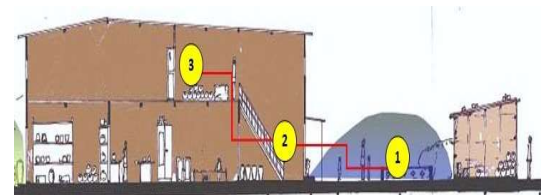


Figure 17: Spatial Organization

Layer of Activity is an outcome of their need and demand. The factor of affordability has restrained the occupants to have separate working space. So, that's why kilns are at outside of the house with storage space followed by living space at the mezzanine floors. Such arrangement has brought multi-functionality with systemic division of activities.

Source: Author

Mapping Elements of Cohesive Threshold Spaces: Considering Border

a) Network of Spatial Delimiter: macro

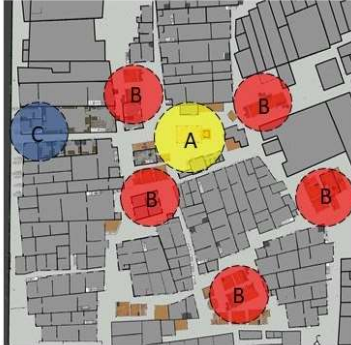


Figure 18: Component Analysis MAP 1

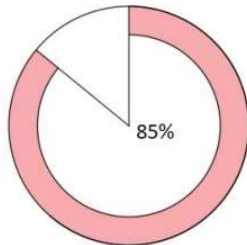
A, B, C indicates different types of activity generating point making network of cohesive threshold.
A-Temple, generating community Interaction
B-Traditional work of making pots & storage space.
C-Commercial selling of the finished work in the same place.



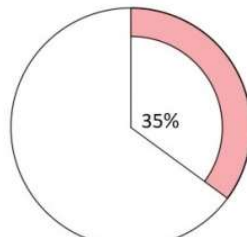
Figure 19: Component Analysis MAP 2

A-Community interaction spaces in the narrow lanes. A Spill over space.
B-Small scale Industries, Near to main road
C-Commercial activity on the road side, catering to all class of people.

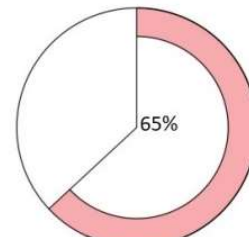
1. Narrow Lanes



Before Pandemic: Crowded with people, activities, vibrant, Highly active

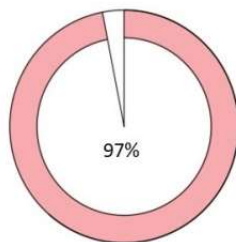


Intermediate Stage (High Spike Rate) - Risk of Contact decreased number of people coming out.

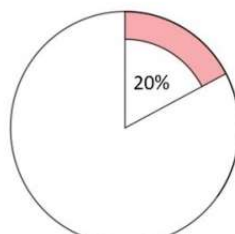


Under controlled Situation: Controlled participation in group of 2-3 people.

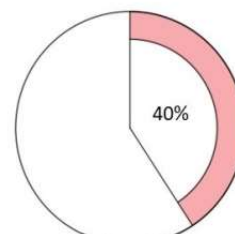
2. Social Gathering Spaces



Before Pandemic: Only open space for celebrations at large scale, Highly crowded, Multiple purpose use.



Intermediate Stage (High Spike Rate) - All the celebration stopped and People avoided to go out, small scale gatherings happened at dwelling unit level



Under controlled Situation: With granted permission and number of people restriction gathering activities started.

3.Workshops & Selling activity

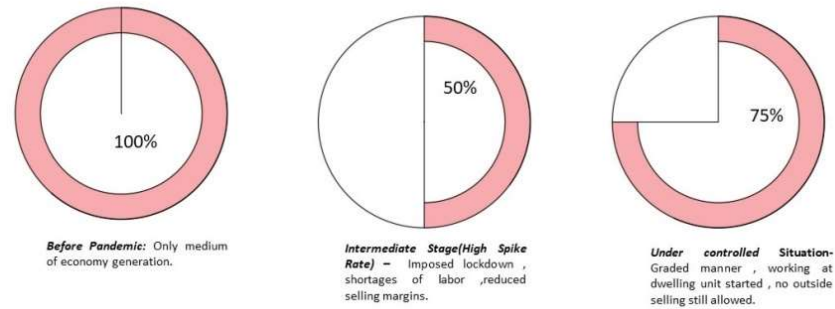


Figure 20: Analysis of Components in different phases
 Source: Author



Figure21: Small scale industries & Spillover of activities on lanes reflecting community living during pandemic.
 Source: Google images

b) Spatial Context: micro

Control at intimate scale of dwelling scale was far difficult. However, it becomes way to unmanageable when it comes to controlling of people’s participation at mesa scale. Dharavi breathes in its semi-public space, majority of time is spent on streets, it will become dead if these spaces stops functioning. Such spaces not just upgrade their daily social life but are part of their economy generation.

- **Phases & Recognition**

The organic setting doesn’t provide clear distinguishing line of one space from the other. There are conflicts in recognising boundaries, borders and limits in terms of approachability and access to spaces at this level due to no land ownership. Apparently, over a period of time people started connecting with space and recognising. The pandemic has brought stagnation in the initial stages to enter spaces which are occupied by multiple user due to health security.



Figure22: Minimal approach, social distance and restricted or no entry to commercial and social activity.

Source: Author

- **Sequence**

Controlled movement and practise of social distancing and maintaining social relations at mesa level was challenging. People themselves avoided clutter and chaos at any of the junctures. Initial stages restricted the movement completely by putting Bari gates and fences on containment. Later stage showing improvement due to awareness has loosen the ties. Many forces of PPP, community engagement and involvement of administration was a point of relief.

- **Spatial Organisation**

There was no isolation space at mesa level, people themselves maintained limit to curtail down contacts outside. However, there schools which got converted into quarantine centres. Hierarchical nature of spaces and performing activities in graded manner in group of two -three people has allowed them to keep community participation intact.

Mapping Elements of Cohesive Threshold Spaces: Considering Limits

Kumbharwada due to high population density and close-knit housing unit maintaining social distancing is challenging. Due to space constrained, individual toilets never existed in the settlement. Administration proposed and developed the common toilets, which were acting as anchor points for people’s interactions and gathering. Fear of community transmissions has made this place filthier and dirtier due to lack of maintenance at policy level. However, Mobile toilet facilities to these localities were provided with proper surveillance and hygiene facility to invite people back into sharing of amenities.



Figure23: Picture showing Toilet talk concept which is a community anchor point

Source: Know your city

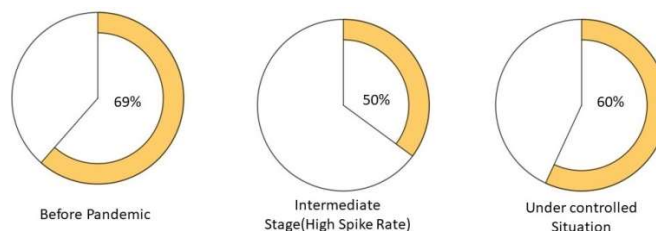


Figure24: Overall impact of pandemic of usage of Public toilets

Source: Author

Dharavi: A Role Model of Community Participation to Combat COVID-19

Dharavi is a place, which has evolved based on community participation since ages, which has now helped to overcome the spread of the virus. Looking at the geographical conditions, high population and dwelling unit densities, lack of health infrastructure and amenities posed fear to Policy makers that it will become a hotspot of COVID-19 transmission in India when it reported its first case on April 1 ,2020 (Brihan Mumbai municipal corporation,2020). It has basic issues of severe sanitation where 80% of the population depends on community toilets with a ratio of 1000people: 1 toilet (Fig 26). Water sources, amenities and sanitation facilities are shared by a large number of people (Fig 26) which is against the mandate of social distancing and increasing health threats amongst people. Dharavi has many rental-based economies for people with no land holding. They migrated back to their villages during the lockdown. The concept of shared co-habitation due to space constraints , housing five to seven people each had an issue of managing distances and contact threats. The spread of disease in Dharavi have raised a concern of community transmission of the disease across the country. Although successful urban patterns of Dharavi have proven to facilitate cohesiveness in the community the fear has altered the network of cohesion at some level. The close-knit association between people with fusion of community has uplifted together to avoid collapse.

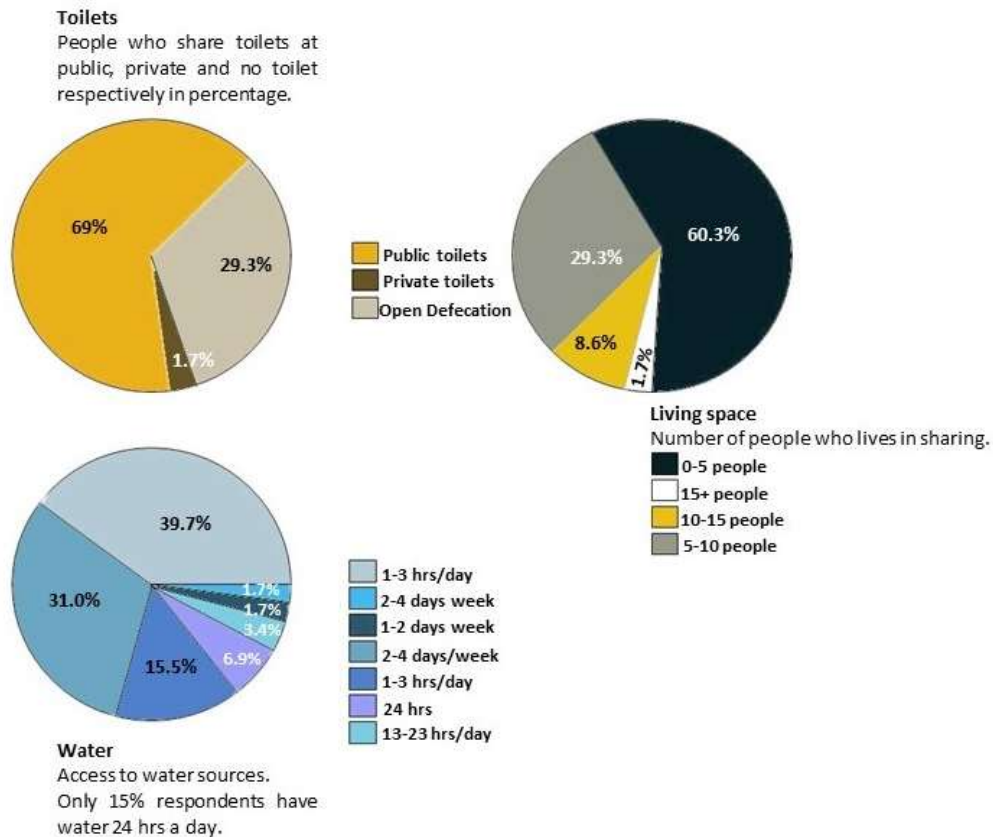


Figure 25: Statistical Data of Shared amenities in hierarchical manner starting from community to own personal access.
 Source: Author, Reports

Perhaps, the template of Dharavi model had successfully flattened the rising curve within 2 months breaking the chain of transmission in a densely packed settlement by varying means of communal incubators Every layer of Dharavi, when exposed, reveals something far more complicated, and organic-

*"One slum. Four layers. Four realities.
 On the ground floor is misery.
 One floor up is work.
 Another floor up is politics.
 And at the top is community"*

The legal, political, and physical chain of Dharavi with social capital of its residents, has determined community's participation as vulnerable to the pandemic and its engagement in response and recovery. Self-Help Groups (SHGs) have emerged as an increasingly effective tool of collective empowerment of the community. Dharavi, by contrast is a self-created special economic zone by the people themselves. There are many factors that have played an important role in mobilizing the community's efforts during the crisis. Many slum leaders and residents in Dharavi have taken proactive steps and lead roles in providing basic services and social support. There was a high flux of comprehensive testing by virtue of testing, tracing, tracking and treating along with sharing COVID-19 prevention measures in the community of Dharavi (BMC).

Participation of private doctors, uninterrupted supply of essentials goods and quarantine facilities came from pro-activeness of communities themselves who identified their evolving needs in the face of the pandemic. Multifold needs and deprivations with voice and support of communities through various published interviews and articles helped to map, prioritize, and address needs.

It employed various steps both at community and policy level for curbing the pandemic. Dharavi in its provoking circumstances, reflected a considerable slow down and pause the transmission by chasing it, with micro-mapping, robust surveillance, public-private partnership (PPP), community engagement, and proactive leadership (Fig 26).

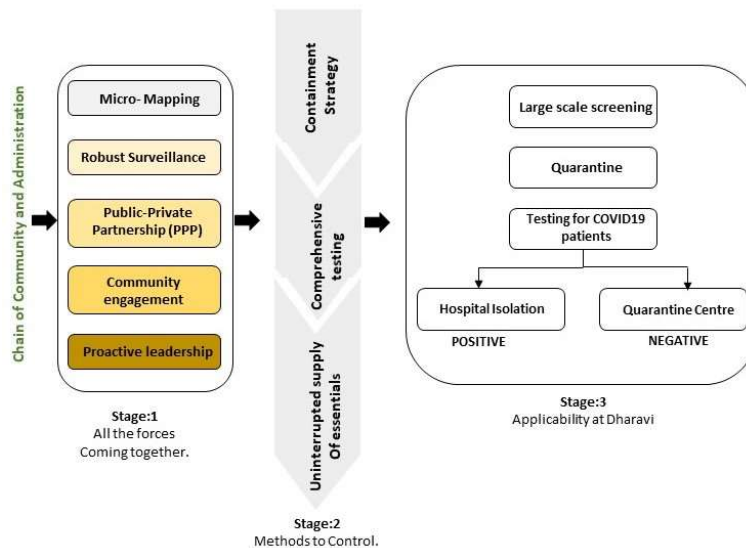


Figure 26: Mapping Role of Community Participation & Administration in curtailing the spread of virus.

Source: Author, BMC



Figure 27: Testing & Treating Centers at Neighborhood level of Dharavi
Source: Hindustan times

Conclusion

COVID-19 has posed intimidating unprecedented challenges in urban areas, and slums have been equally impacted. The challenges have unfolded many layers which were not addressed in the past, it has brought positive changes like prioritizing of Health concerns and mutual social support into living. There was a gap of studies previously in order to understand the prevalent models of community engagement to tackle and to build community as a key to fight pandemic. People of Dharavi, administration, policy makers, urban planners, strategists or researchers have proven and could possibly be an asset in dealing with multifaceted challenges like these. The basic understanding of community engagement in Dharavi lied more into the narratives of Spatialities created by people according to their needs and demands. It is a self-contained model of informal urbanism with mix of function and conflicts co-existing due to negotiation between people, place and activity. There reflection of Super-diversity community into living is the strengthening point achieved during pandemic because of which the neighborhood could bounce back stronger and likely produce positive changes.

Dharavi as a neighborhood is a staring example in order to break the chain with healthy responses while dealing with un-imaginative urban crisis. The analysis of the literature presented in this paper clarifies the meanings and implications on the idea of cohesive threshold spaces which was a paradigm shift in usability of existing space in a new manner to practice social distancing, as a sum of approach in handling spaces both with Cohesion and Threshold. The definition of cohesive threshold spaces involved understanding interpersonal dynamics and sense of connection while maintaining distances. It is a capitalizing retrospection done in the entire idea of dealing in terms of spatial(physical) and intangible factors.

Although, past research investigations provide some insight into the application of the sense of community living in neighborhoods, also some of the planned interventions with an inclusive and respectful approach towards participatory development in empowering slum dwellers. However, there is a need for continued research on the necessity of the existence of local communities and idea of threshold in the neighborhoods to deal with such pandemics in future. There is still a need to facilitate future studies in the field of Cohesive threshold spaces as a part architecture and Urban design practices.

There was no invention in the field of design to deal with pandemic of this type. The framework worked out based on the theoretical premise sets up a base to study spaces corresponding with delimiting spatial elements in the neighborhood of Dharavi, is a dogged perspective in the entire approach. Further research can be carried out in detail for each parameter in different context of

organic settlements. The strategies keep evolving considering the changing trend in cities, its places and people as well as the way in which pandemic happens.

Nevertheless, such approaches could also be adopted and become part of key design strategies for designer and planners while planning future built environment. This study also lays a foundation for debate over the places with anchoring nodes in its setting to be vocal about local practices and communities not just in evolved settlement but in planned cities too.

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